CHAPTER 9

Economic Regulation

The United States relies on the private sector to organize most economic activity. Through price signals and competition, markets allocate scarce resources to their highest-value uses, encourage businesses to avoid waste, and create incentives to invest in new technologies. Government plays a vital role in a market system by guaranteeing property rights and enforcing contracts, meaning that businesses and individuals can invest and trade with confidence that their agreements will be honored and free from fraud. A private enterprise system supported by consistent enforcement of laws protecting property and contracts has been at the heart of the American economy's tremendous prosperity and growth.

Although free markets produce the most efficient outcome in most cases, there are markets in which government intervention can increase economic efficiency. A *market failure* is an instance in which unregulated markets yield an outcome that is inefficient from society's point of view. As discussed in Chapter 2, regulation is important in financial markets because of imperfect information; for example, investors often have far less information about the firms they invest in than the managers who control those firms. Chapter 3 discusses the role of regulation when production of a good creates a *negative externality*, such as environmental harm, that does not represent a cost from the producer's perspective but imposes a cost on society. Regulation can mitigate the costs of negative externalities by ensuring that consumers and producers bear the full cost of their activities. Regulation can also reduce harm from *natural monopoly*, which occurs when a single seller can produce a good or service more cheaply than a competitive industry. In the presence of natural monopoly, an unregulated market will yield output levels that are too low and prices that are too high from society's perspective. In cases like these, where there is a specific market failure that can be effectively addressed by the government, regulation may be able to improve economic outcomes.

When unregulated markets produce inefficiencies, however, government is not always effective in eliminating or reducing the inefficiencies. There are several reasons that government is often inefficient in carrying out regulation. First, competitive market prices, which efficiently coordinate decisions in competitive markets, are unavailable where market failures have caused inefficiencies. The lack of reliable price information makes it difficult for government to design effective regulation. Second, government does not face market incentives to keep costs low and to use resources in the most efficient way possible. Third, government decision making reflects the results

of a political process in which decision makers may be motivated by narrow interests rather than the broader goals of society. Market participants may spend resources on attempts to influence the political process, when other uses of resources would produce greater public benefit. These factors mean that government intervention can have significant costs, which must be weighed against the potential benefits of addressing market failures.

One way government can mitigate these problems is by designing regulations that take advantage of markets or market mechanisms whenever possible. "Command and control" regulation, which replaces decentralized market choices with centralized decision making by government officials, exacerbates the three problems identified above. Regulation that relies on market mechanisms, however, can take advantage of individuals' information about costs and benefits, give individuals the incentive to make socially efficient decisions, and reduce the ways that narrow interests can influence policy choices.

This chapter reviews several areas in which markets have been affected by government policy in the past 8 years. The Administration has pursued market-oriented policies that favor individual choice over government decision making and has supported new rules when needed to address identified market failures. The Administration has also considered the effectiveness of the overall regulatory structure for financial markets in particular, a summary of which is provided in Chapter 2. The key points of this chapter are:

- Regulation is appropriate when, and only when, there is an important market failure that can be effectively addressed by the government. For example, the Administration has taken steps to reduce restrictive regulation of broadband markets, preserving an environment conducive to innovation and new investment. Conversely, the Administration supported new rules for financial reporting when it became clear that existing laws did not adequately reduce information asymmetries between investors and management.
- When the government intervenes to address market failures, it should attempt to take advantage of market-based incentives whenever possible. The Administration has helped ensure that scarce spectrum licenses are allocated more efficiently by increasing the amount of bandwidth allocated through auctions rather than through arbitrary allotments. In transportation, the Administration has supported market-based approaches to financing infrastructure such as roads and the air traffic control system.
- The Administration has endeavored to ensure that, when the government does intervene in markets, it does so in a way that supports the operation of competitive markets. When the market for terrorism insurance was disrupted following the attacks of 9/11, the Administration supported a temporary program of Federal support for terrorism insurance, and

the Administration has insisted that subsidies be phased out as private insurers adapt and return to the market. By supporting tort reform, the Administration has helped reduce the scope for class action lawsuits that create costs that outweigh their social benefits.

Telecommunications and Broadband

Digital technologies and the Internet are rapidly changing the market for telecommunications. Much of our system for regulating telecommunications, however, is designed to address local monopolies in telephone service. Regulation that was well suited to markets based on prior technologies should be revisited as markets change. Particularly when innovation is transforming an industry, outdated regulations can hamper investment and prevent new products and services from developing in the way that best serves consumers.

Governments regulate local telephone service because it has long been considered a natural monopoly. It is expensive to build and maintain a network of lines to homes and businesses, but once the lines are in place, the extra cost of providing each call is small. This means new entrants would find it very hard to challenge an incumbent phone company. A potential competitor would need to invest large amounts to duplicate an incumbent phone company's network of lines, and resulting competition would make it hard for either firm to charge rates high enough to pay for the investment. To prevent incumbent phone companies from charging monopoly prices, government regulates rates for local phone service. In addition, the Federal Government attempts to encourage competition in local service by requiring incumbent phone companies to make their lines available to competitors and by regulating the price for access to their lines.

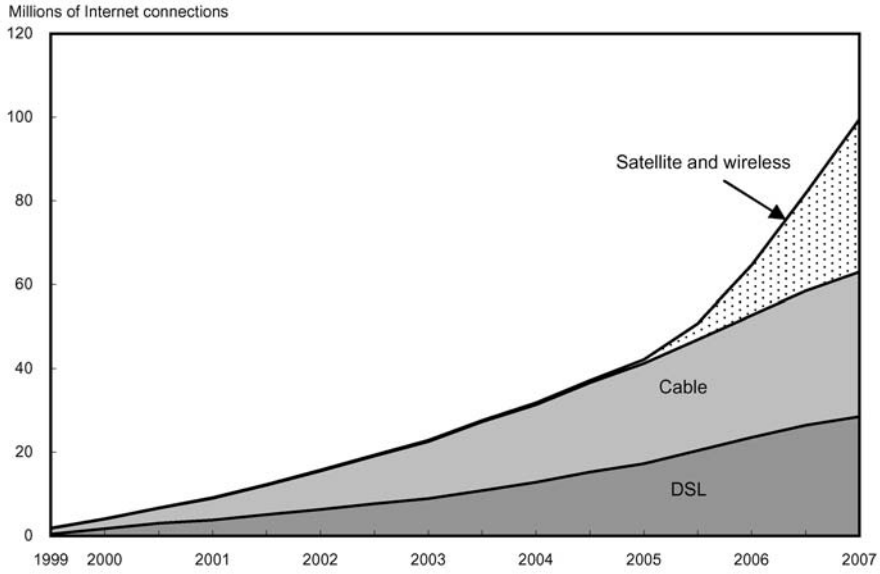
New Technologies Permit Greater Competition in Telecommunications

New technologies are changing the telecommunications market. A new market has developed in *broadband* Internet connections that can transmit data at high speeds. Broadband data can be delivered along the same physical lines that carry telephone signals, but can also be delivered via cable, via fiber optic connections, wirelessly via "third-generation" networks or satellites, or via newer technologies such as broadband over power lines. Because digital signals can be delivered in a variety of ways, the broadband market is more open to competition than the traditional phone system, which required copper wires connected to every home.

Unlike local phone service, for which Americans traditionally had only one provider available, the large majority of Americans can now choose among competing broadband providers. As of June 2007, 99 percent of U.S. ZIP codes had access to two or more high-speed Internet service providers, and more than three-quarters of ZIP codes were served by five or more providers. The price of broadband service has fallen in real terms even as the average broadband connection has become more advanced. Chart 9-1 shows that the total number of subscribers has grown dramatically, with an increasing variety of technologies used.

These same digital technologies, combined with large investments in wireless telephone networks, mean that consumers have new choices for local telephone service, a market situation that undermines the traditional arguments for regulation in local telephone markets. Between 2002 and 2006, the number of households that use a wireline for their primary phone connection fell from 102 million to under 90 million, and the number of "wireless-only" households increased from 2 million to 19 million. That new competitors are challenging the longstanding monopoly position of local telephone providers raises questions about the best approach to regulating local telephone service going forward.

Chart 9-1 **High-Speed Internet Lines in the United States by Type of Connection, 1999–2007**
Broadband connections have grown rapidly.



Note: Fiber and powerline connections are a small fraction of connections and have been omitted.
Source: Federal Communications Commission.

Telecommunications Regulation in an Evolving Market

The Administration's approach to broadband regulation has recognized that a dynamic and competitive broadband market should not be governed by rules designed for monopoly telephone services. That does not mean that no rules are appropriate. Broadband companies should disclose the policies they use in managing their networks; if consumers know what they are getting, competitive pressures will offer the most effective means of providing consumers with low prices and high-quality service. However, prescriptive regulation of a growing, dynamic market carries two risks. First, because the market continues to evolve, a regulation aimed at temporary or hypothetical problems may cause permanent harm by preventing new and innovative ways of delivering service. Second, regulations that make it harder for broadband providers to price or manage their networks effectively may lower the incentives to invest in new capacity, ultimately harming consumers.

Following the principles outlined in the previous paragraph, the Administration has supported policies that avoid unwarranted regulation of the broadband market and encourage private sector investments in the market. In a series of decisions, the Federal Communications Commission (FCC) determined that broadband service providers would not be regulated as a local phone service; in particular, they are not required to make their high-speed lines available to competitors at a regulated price. While government-mandated access can facilitate competition between a large incumbent provider and potential competitors, applying it to an emerging industry that features competing technologies would have risked undermining incentives to invest in new capacity. In fact, the private sector has invested more each year in building broadband networks, in real terms, than the Federal Government invested annually in the Interstate Highway System in the 1950s. These investments in turn have meant more options for consumers, and ultimately more competition in the broadband market.

There is certainly a role for telecommunications regulations that target specific failures in the telecommunications market. For example, 911 services provide external benefits by making it more likely that emergencies are promptly reported to emergency services. The Administration supported the FCC's efforts to ensure that 911 services are available for subscribers of Voice over Internet Protocol telephone providers. When there is a role for regulation, the rules should facilitate competition and consumer choice whenever possible. In implementing the "Do Not Call" list, for example, the Federal Trade Commission did not dictate a market outcome but created a way for people to decide whether they wanted to receive certain telemarketing calls (see Box 9-1).

Box 9-1: The Do Not Call List

Telemarketing can be an effective way to inform people about products and services, but it generates a negative externality by wasting the time of those who are not interested in the product being sold. Although the harm from each call may be small, many consumers have found the aggregate externality to be quite large. The policy behind the Do Not Call list is to permit consumers to decide for themselves whether the benefits of telemarketing calls outweigh the costs. Individuals who do not want to receive calls simply add their phone numbers to a central registry, and telemarketers must delete any numbers listed in the registry from those they plan to call. The program has proved quite popular: as of 2007, according to one survey, 72 percent of Americans had registered on the list, and 77 percent of those say that it made a large difference in the number of telemarketing calls that they receive (another 14 percent report a small reduction in calls). Another survey, conducted less than a year after the Do Not Call list was implemented, found that people who registered for the list saw a reduction in telemarketing calls from an average of 30 calls per month to an average of 6 per month.

Spectrum Policy

Since the 1920s, the U.S. Government has required a license of anyone who transmits radio signals on most frequencies. Radio communication works by transmitting a signal on a specific frequency of the electromagnetic spectrum. Mandatory licensing prevents *interference*: when multiple signals are broadcast on the same frequency, it is difficult to receive any of those signals clearly. Interference is an example of an externality, because when one person decides to broadcast a signal, he or she does not take into account the harm this causes to people who are attempting to send or receive other signals on the same frequency.

While licensing addresses the externality problem, it puts the government in the position of allocating a scarce and valuable resource. Given spectrum's value, it is important to allocate it efficiently. Radio waves can be used in many different ways: for two-way communication, to broadcast radio or television programs, and for radar, among other uses. The more spectrum is set aside for broadcast television stations, for example, the less spectrum is available for wireless phones. The challenge of spectrum licensing is to ensure that spectrum is divided among competing uses in the way that creates the greatest benefits to society.

Ordinarily, markets allocate scarce resources using prices, ensuring that resources are dedicated to their highest-value uses. For many decades, however, the U.S. Government awarded spectrum licenses through an administrative process, deciding both how spectrum would be used and who would be allowed to use it. Prospective users submitted applications to the FCC, and the FCC attempted to identify the applicant who would offer the greatest public benefit.

The optimal allocation of spectrum, however, depends on information not easily available to government, from technical information about how much spectrum is needed to effectively carry out different activities and how that is likely to change in the future, to questions about the value to consumers of the various services that require spectrum. Administrative assignment of licenses also gives firms no incentive to find ways to use spectrum more efficiently, because they cannot change their method of transmission and cannot sell or lease unused capacity to others who would use spectrum in a different way.

The United States began using a more market-oriented approach to allocating spectrum rights in 1994 with the first auctions of radio spectrum for use in wireless phones. In the auctions, the FCC announces the portion of the spectrum for which licenses will be made available, and all interested parties are invited to submit bids. By 2008, the FCC had held more than 70 auctions that raised tens of billions of dollars for the Federal Government. More important than the revenue, however, is that auctions ensure that spectrum will go to those who are able to use it in the most efficient way. When one company outbids others, it generally means that the winner believes it can produce more value using that spectrum, by using it more effectively or in a more innovative way than its competitors. Instead of a government evaluation of which applicant is best able to use spectrum to serve the public, the bidding process allocates licenses based on what companies reveal about the benefits they can actually produce.

The Administration has worked to increase the role of auctions in allocating spectrum. Most spectrum remains under licenses granted long ago; as of 2001, less than 7 percent of the most valuable spectrum was available for allocation through market mechanisms. One obstacle to reallocating spectrum is that incumbent license holders have a strong incentive to retain spectrum they use, even if others might be able to use it more efficiently. One way the Administration has tried to overcome this obstacle is by making it easier for incumbents to transfer their spectrum to others. In October 2003, the FCC established new procedures for holders of existing licenses to more easily sublicense their spectrum to third parties, helping to foster secondary spectrum markets. More broadly, the Administration has supported policies under which incumbents are compensated as part of a process that reduces the total amount of spectrum they use. Two major spectrum auctions using

this general approach since 2001 have freed up significant bands of spectrum, nearly doubling the amount of spectrum allocated through auctions for wireless use.

In early 2008, the FCC held an auction to allocate spectrum that will be vacated when the United States makes the transition to digital television broadcasting, pursuant to the Digital Television Transition and Public Safety Act of 2005. Digital signals allow broadcasters to transmit television programming more efficiently, so that the spectrum that was used to broadcast a single analog television channel is now able to carry multiple digital channels. One result of the transition is that spectrum that was previously used for channels 52 to 69 (between 698 and 806 megahertz (MHz)) will become vacant. Television stations using other frequencies will be able to transmit using digital signals. Much of the newly vacated spectrum was auctioned for wireless communications use.

In December 2004, the President signed the Commercial Spectrum Enhancement Act, which created a mechanism for transferring spectrum from government use into the private sector. Government users of these frequencies were given the opportunity to switch to other parts of the spectrum, with the transition costs (including new equipment) paid for using a portion of the auction proceeds. Under the Act, the reallocation of spectrum was not to take place unless the auction raised sufficient funds to compensate the affected agencies. In fact, auction revenues were several times what the agencies had reported was necessary to compensate them for the switch. The large difference between the market value of spectrum and the costs of the transition demonstrate the large efficiency gains available from reallocation of spectrum. Together with the transition to digital television, the Commercial Spectrum Enhancement Act has freed up 152 MHz of spectrum to be auctioned for wireless communications use, and all but 10 MHz had been auctioned by 2008. This represents an increase of 80 percent over spectrum available for mobile telephones at the beginning of this Administration.

The President's Spectrum Policy Initiative for the 21st Century, which was announced in 2003, requires a studied look at the current spectrum management policies and practices in the United States. As part of this program, the Commerce Department's National Telecommunications and Information Administration has worked to establish or expand incentives for promoting efficient spectrum use by the private sector as well as Federal agencies, using market-based approaches wherever appropriate. Areas of particular interest have included revising the traditional "command and control" management of Federal spectrum, developing user fees that reflect market worth, and creating property rights that would permit spectrum trading.

Tort Reform

Even when businesses are not regulated directly by the government, they face the possibility of being sued under the tort system. "Tort" refers to the body of law that permits individuals to sue others, seeking compensation when they have been accidentally or deliberately injured. Many tort suits arise from harms involving strangers, such as automobile accidents, but an important class of torts arises when buyers of a good or service sue the seller in response to harm related to the purchase of the good or service.

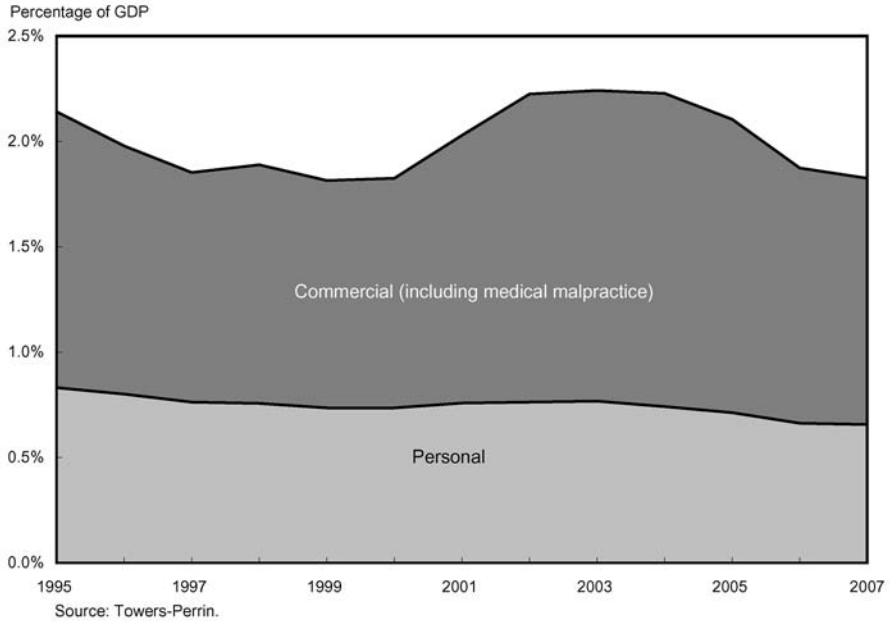
Tort law can be a response to the market failure of imperfect information. Buyers often cannot tell ahead of time whether a product is safe or a service provider is qualified. By providing buyers with redress when a product or service they buy causes harm, tort law can encourage sellers to exercise appropriate care and to make sure buyers are getting what they expect when they enter into a transaction.

Like more direct forms of government regulation, tort law establishes rules that firms must follow to avoid being penalized. Tort law can increase sellers' incentives to provide safe, high-quality products and services. It also compensates victims of some accidents, providing a form of insurance when an accident is caused by another's negligence. However, the tort system is an expensive form of regulation, and tort law can be abused in ways that make its costs to society greater than its benefits. One study found that out of each dollar of costs in the tort system, only 46 cents goes to compensating plaintiffs for their losses. This makes the tort system much more expensive to administer than other systems that compensate victims for unexpected losses, such as worker's compensation.

Total tort costs represent a significant part of U.S. economic activity. Tort costs in 2007 totaled $252 billion, or 1.83 percent of gross domestic product (GDP), including damages paid to compensate plaintiffs, costs of defense, and administrative costs. As shown in Chart 9-2, more than half of tort costs come from lawsuits against businesses (including doctors) as compared with personal lawsuits such as automobile accidents.

The Administration has worked to reduce the scope of lawsuits in areas where costs often outweigh benefits. A type of lawsuit that may be especially susceptible to abuse is the class action suit, in which a single suit is filed on behalf of a large number of plaintiffs with the claim that everyone in the class has been harmed by the defendant. Class actions can be efficient in some cases in which a large number of people have suffered a similar type of harm, because they eliminate the redundancy of multiple courts exploring similar sets of facts, and because absent a class action, each individual may have little incentive to bear the costs of a lawsuit. A potential problem with class action lawsuits, however, is that plaintiffs' lawyers may have incentives that are not

Chart 9-2 **U.S. Tort Costs, 1995-2007**
Tort costs as a percentage of GDP have moderated in recent years.



Source: Towers-Perrin.

aligned with those of their clients. Because individual plaintiffs may not have a large stake in the outcome, they may not effectively monitor their attorneys, and plaintiffs' attorneys may negotiate a settlement with the defendant that works well for the attorneys but does not represent meaningful redress for the people actually harmed.

In 2005, the President signed the Class Action Fairness Act, which contained provisions aimed at reducing the number of abusive class action lawsuits. An important set of reforms addressed "coupon settlements," one arrangement that may often serve the interests of defendants and plaintiffs' lawyers at the expense of plaintiffs themselves. In a coupon settlement, members of the affected class receive coupons that can be redeemed for discounts on the defendant's product, but attorneys receive what may be a very large cash payment based on the nominal value of the coupons. For example, in one case, plaintiffs alleged that a video rental company had failed to disclose its late-fee policy. Members of the class received coupons worth $1 off a future rental, while the plaintiffs' attorneys received a fee of $9.25 million. Experts estimated that at most 20 percent of the coupons would be redeemed. Moreover, it is plausible that the coupons were more effective as a marketing effort by the defendant than as a deterrent to poor disclosure policies. The Act reduced possible abuse of settlements through

a number of reforms, including instructing courts to scrutinize settlement agreements more carefully and a requirement that attorney fees be based on the value of coupons actually redeemed, rather than coupons issued.

The Act also took steps to curtail "forum shopping"—that is, efforts by plaintiffs to choose a jurisdiction that they expect will be friendly to their case. Lawsuits are generally tried in a jurisdiction that has some connection to the parties, but because class actions often include a large number of plaintiffs nationwide, attorneys had the opportunity to initiate a lawsuit in a location where they felt either the court or the local jury pool would be most favorable to their case. The Class Action Fairness Act addresses this issue by making it easier for defendants to have their case heard in Federal court, reducing opportunities for plaintiffs to shop around for a jurisdiction in which they are likely to have an advantage.

Corporate Governance Reform

For small businesses, a firm's owner is likely to be its manager. But large corporations may be owned by thousands of shareholders at once, and such a large, dispersed group must delegate management to a smaller group of people. This separation of ownership and control makes it possible to maintain central control over a firm's operations while raising the large amounts of capital needed for many corporate investments. But it also introduces the problem of ensuring that managers make decisions that are in the best interests of the shareholders. Corporate governance refers to the systems through which shareholders are able to control the choices of those who manage the firm on their behalf.

Regulation of corporate governance arises from the fact that managers know more about the corporation's situation than the shareholders on whose behalf they are making decisions. Most shareholders would like the corporation's managers to make decisions that maximize profits. To encourage this, corporate boards attempt to design incentives that reward managers when their actions increase profits. For these incentive systems to work, however, they must be based on accurate financial reports that are generated in a transparent way.

A corporation will be better off if it can ensure accurate financial reporting, because if investors doubt the information they receive, they will be less willing to invest. But it is difficult for shareholders to observe the mechanisms that a corporation uses to improve accuracy and to prevent management from making misleading reports. Furthermore, shareholders are a large, dispersed group, so that an individual shareholder will not receive the full benefit of costly efforts to monitor management. In the face of these challenges to

private monitoring of financial reporting, the U.S. Government attempts to ensure the accuracy of financial reporting through the securities laws enforced by the Securities and Exchange Commission (SEC).

Beginning in the late 1990s, an increase in earnings restatements and some large accounting scandals at major companies led to concerns that corporations had been misleading investors about the extent of their profits. In March of 2002, the President proposed a plan to improve corporate governance, centered on three principles: accuracy and accessibility of information, management accountability, and auditor independence. Congress later passed the Sarbanes-Oxley Act of 2002, which incorporated these three principles by introducing a number of changes to U.S. securities laws. Some of the key reforms are described in the following paragraphs.

To promote greater accuracy and accessibility of information, Sarbanes-Oxley requires corporations to disclose more information about internal control structures and the members of their audit committees. It also significantly increases the penalties for criminal fraud, increasing the maximum term for securities fraud to 25 years in prison and permitting terms of up to 20 years for destroying documents.

To promote greater management accountability, Sarbanes-Oxley requires chief executive officers and chief financial officers to certify the accuracy and completeness of financial reports that they file with the SEC and makes it a criminal offense to knowingly certify a false report. In addition, executives must forfeit any bonuses or other incentive compensation to which they would have been entitled during the year after a false report is issued.

To increase auditor independence, the Act creates the Public Company Accounting Oversight Board, which oversees the firms that audit corporations' financial reports. The Board conducts regular reviews of accounting firms' activities, and if it discovers problems it can impose sanctions and can bar a firm from providing audit services to corporations listed on U.S. securities exchanges. In addition, the Act creates new requirements to ensure that accounting firms are more independent of a corporation's management. Accounting firms are no longer permitted to sell certain non-audit services to their corporate audit clients, and a company's accountants must be chosen by a committee of directors who have no ties to management.

Since passage of the Sarbanes-Oxley Act, many have expressed concern about the cost of compliance with its requirements. There is evidence that some firms, especially smaller firms and foreign firms, have chosen to cease or to avoid trading on U.S. public markets because of the expense of complying with Sarbanes-Oxley, although there is no definitive evidence on how large this effect has been. While some increase in costs is the inevitable result of stricter reporting standards, it is important to ensure that the increased costs are justified by greater accuracy and transparency. Many of the specifics of Sarbanes-Oxley depend on rules and standards under the control of the SEC

and the Public Company Accounting Oversight Board. As regulators and corporations become more familiar with the implementation of the Act, and as reporting companies adapt their practices and regulators adjust rules to eliminate inefficient requirements, the costs should fall.

Insurance Against Terrorism and Natural Disasters

When disasters occur, such as the terrorist attacks of September 11, 2001, or hurricanes such as Katrina in 2005 or Ike in 2008, the government plays an important role in providing emergency relief and helping communities to recover. At the same time, insurance coverage is vital in helping individuals and businesses recover from catastrophic events. Most insurance is provided by the private sector, regulated to make sure that insurers are able to repay claims if they come due. But disaster relief acts as a form of public sector insurance, and this means that the market for insurance against catastrophic events is inevitably affected by government policy. To preserve private insurers' important role in mitigating disasters, government disaster relief should help the Nation recover from major losses without discouraging the operation of private insurance markets.

Insurance markets give individuals and businesses a way to reduce risk. For example, anyone who owns a building faces a small risk of losing property in a fire. Rather than accepting a small probability of suffering a large financial loss, insurance allows one to substantially reduce this risk by paying a regular fee, called a *premium*, in exchange for compensation for some or all of the losses sustained in the case of a fire. Because only a small fraction of the population will suffer a fire in any given period, the premiums from the overall pool of insured people provide funds to pay for the damage suffered by those few who do suffer fires.

Insurance markets work most effectively if premiums are tailored to risks that are observable or can be controlled by the insured customer. If individuals with different risk profiles are grouped together and charged the same premium, then those who in fact have low risks are being charged premiums that are greater than the expected value of their losses and may choose to go without insurance. Differences in premiums can also lead individuals to make more efficient choices about what risks to take and how best to mitigate risks—for example, if driving a safer car means paying lower insurance premiums, people will have an incentive to choose safer vehicles. Similarly, it may be more expensive to live in some coastal areas because a high risk of storm damage leads to higher insurance premiums. This means that when

home buyers decide whether to live in those areas, they will take into account the extra cost associated with potential storm losses.

For risks such as house fires or automobile accidents, the fraction of the population that will suffer losses each year is relatively stable. This means that insurers can feel reasonably confident about what level of premiums will be sufficient to cover the year's losses. Losses from major catastrophes are much more difficult to predict—for example, flood losses in 2005 related to Hurricane Katrina were many times larger than the annual flood losses from preceding years. This creates the risk that total losses in a year will be greater than the funds available to the insurer to pay claims. Insurance companies address this risk by purchasing *reinsurance* for large losses: in exchange for premiums, reinsurers agree to bear a fraction of insurer's losses if those losses exceed a certain amount. Because reinsurers typically diversify their risks internationally, they are in a position to pay claims arising from catastrophic losses in a single country.

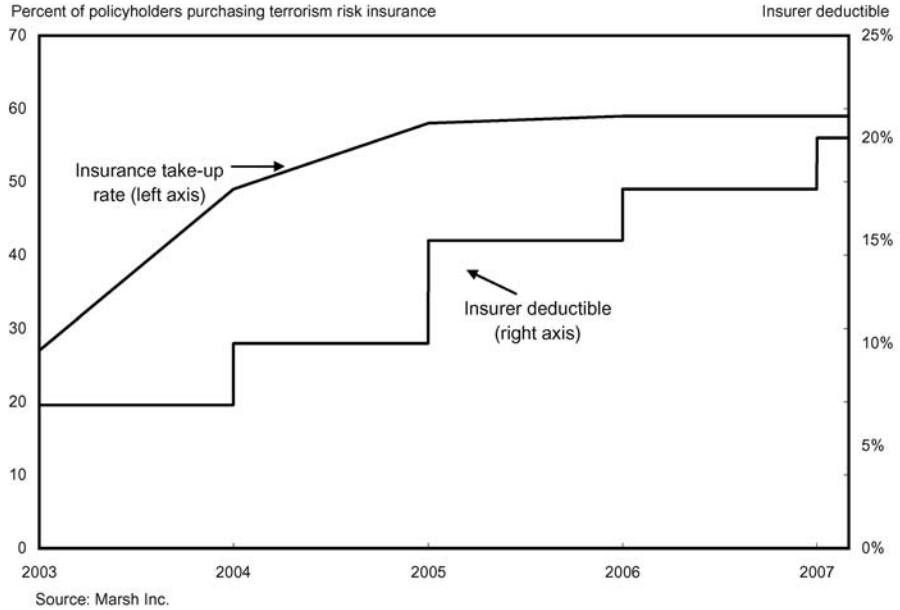
The 9/11 attacks seriously disrupted the market for terrorism insurance. Prior to the 9/11 attacks, the risk of terrorist attacks was covered by most commercial insurance policies. In the months following the attacks, however, insurers were forced to reassess the likelihood of potential terrorist attacks and the capital reserves they would require, and many insurers began excluding terrorism risk from commercial insurance policies. Congress passed the Terrorism Risk Insurance Act (TRIA) to address this disruption in the market and to help reassure businesses that they could obtain insurance against the commercial risks associated with the threat of terrorism. Under TRIA, the U.S. Government provides reinsurance for terrorism losses: in the event of a claim for terrorism-related losses, an insurer would pay the claim to the insured party and then be compensated by the Government for a large share of the losses above certain limits. Insurers do not pay premiums up front for this reinsurance. Instead, TRIA specifies that assessments from insurers would be made after the fact.

TRIA was intended to address a sharp temporary disruption in insurance markets, not to be a long-term subsidy to insurers that provide terrorism coverage. Providing insurance at subsidized rates reduces the efficiency of the insurance market. First, it undermines the incentive effects of premiums that reflect expected losses as discussed above. This can encourage people to undertake risks that they would otherwise not be willing to bear and discourages people from taking actions that would mitigate risk. Second, government-provided reinsurance undermines the private market for reinsurance, discouraging innovation and efficient pricing of risk.

Because of these problems with government-subsidized insurance, the Administration has insisted that TRIA should be a temporary program and that subsidies should be reduced as markets adjust to the post-9/11 environment. The subsidies provided by TRIA have gradually been reduced. The insurer's deductible was initially 7 percent of the insurance company's previous year's premiums, and this fraction had been increased to 20 percent by 2007. In addition, the Federal share of insured losses has been reduced from 90 percent to 85 percent, and as of 2007, Federal payments will not be made unless insured losses from a terrorist event exceed $100 million. The program is scheduled to expire in December of 2014.

The market in terrorism insurance has grown since 2002, even as subsidies for terrorism insurance have been reduced. As shown in Chart 9-3, the fraction of policyholders purchasing terrorism insurance increased from 27 percent in 2003 to 59 percent in 2007, even as deductibles for the Federal reinsurance program were increasing. As the private market develops to accommodate the post-9/11 environment, government assistance should be eliminated to allow the market to operate efficiently.

Chart 9-3 **Terrorism Risk Insurance (TRI) Deductibles and Take-up Rates 2003–2007**
TRI take-up has increased as deductibles have risen and Federal payout shares have fallen.



Source: Marsh Inc.

Roads

The Nation's roads are built and maintained primarily by State and local governments; the Federal Government's role has been to help fund these activities. Like some other infrastructure projects, roads are often natural monopolies: once a road is constructed, it is usually less expensive to accommodate extra traffic on that road than to construct a competing road. But rather than organizing roads under a regulated, private sector monopolist, the government generally owns and operates the roads itself—at least in part because of the expense that would be involved in limiting access to roads to paying drivers and collecting revenue from road users.

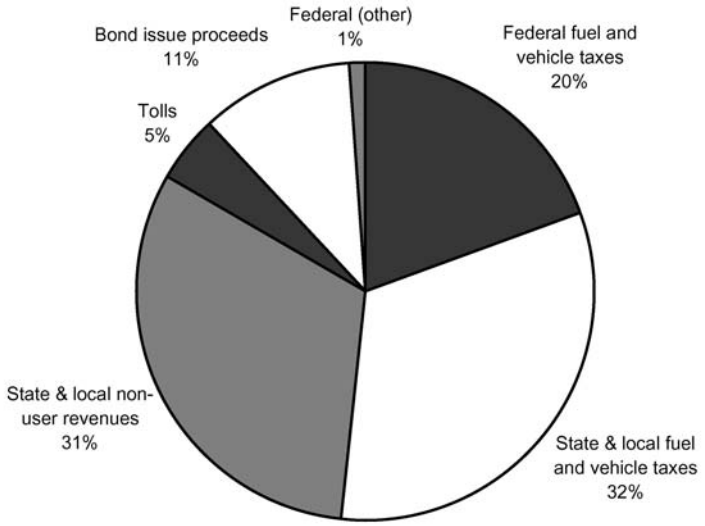
When government provides a service itself to an identifiable subset of society, it is often most efficient to pay for the service through user fees that reflect the *marginal cost* of providing it—that is, the extra cost created by each user. This approach, when practical, both ensures that the service will be used when its value is greater than its costs and provides information about whether and when capacity should be expanded. User fees that reflect marginal costs will lead drivers to make efficient decisions, choosing to drive when the benefits they receive are greater than the costs their trip generates.

On an uncongested road, the marginal congestion imposed by each driver is very small, and fees that reflect marginal cost may often be insufficient to pay the fixed costs of building and operating the road. In this case, the goal is to finance roads in a way that does as little as possible to discourage efficient road use. When a road is congested, however, each trip adds to the delays experienced by other drivers, meaning that the marginal cost of each trip can be quite large. As discussed below, efficient user fees will reflect these congestion costs.

Broadly speaking, roads in the United States are financed in one of three ways: through general revenues such as property or sales taxes, through fuel taxes and other vehicle fees, and through tolls. Chart 9-4 shows that about a third of expenditure on roads is raised through taxes unrelated to road use, largely at the State and local level. About half is raised through fuel and vehicle taxes, and only about 5 percent through tolling (11 percent is funded through bond issues that will be repaid from one of these three revenue sources). Almost all Federal expenditure is funded by fuel and vehicle taxes, reflecting an early decision that the Nation's Interstate Highway System should be funded by the drivers who benefit from it.

One advantage of funding roads with fuel taxes rather than general revenues is that they approximate a user fee: roads are paid for by those who use them, and on average people who drive more contribute more of the cost of providing the roads. However, fuel taxes do not do a good job of capturing the marginal cost of using the road. One of the most important

Chart 9-4 **Highway Expenditures by Revenue Source, 2006**
Fuel and vehicle taxes represent just over half of highway revenue.



Source: Department of Transportation (Federal Highway Administration).

costs associated with road use is congestion: when a driver uses a congested road, she or he increases the delays experienced by everyone else. The increased delay is a negative externality, because each driver does not take into account these costs when deciding when, where, and whether to drive. The fuel tax fails to account for this negative externality, because drivers pay the same amount whether driving on an urban highway at rush hour or on an empty rural road. Many economists point out that fuel taxes can be effective in addressing some negative externalities directly related to fuel use, such as environmental degradation and petroleum dependence. But this does not imply that fuel taxes are the best way to finance roads. In fact, as vehicles become more fuel efficient, they will produce less revenue for each mile driven, so that the same amount of driving will contribute less and less highway revenue.

The Administration has supported exploring ways to begin moving away from fuel taxes toward forms of direct pricing, such as tolls, that would be more effective at matching what drivers pay to the costs they impose. Not only are tolls independent of a vehicle's fuel efficiency, but they also have the flexibility to address congestion externalities because they can be adjusted according to time and place, so that drivers pay more to travel on busy routes

or during busy times. Such tolls encourage drivers to drive at times and places where they will contribute less to the delay experienced by others on the road. Furthermore, tolls that reflect how busy a road is can provide information about how much drivers are willing to pay to use each road. This information can help improve decisions about new investments, by providing objective measures of how valuable roads are to drivers.

By linking revenue to particular road projects, tolling can facilitate private investment in building and maintaining roads. This increases the likelihood that investments will be based on a careful analysis of a project's benefits and costs. When funding is controlled by the government, decisions about road investments are likely to be influenced by a political process that takes place among people with competing interests, and the process frequently does not reflect an objective cost–benefit analysis. Tolling permits revenues to be collected at the point of road consumption and directed to those responsible for building and operating the road. Toll revenues can give investors strong incentives to pursue only investments with revenues that exceed their costs, so that they will not ignore projects with a large revenue-to-cost ratio and will not spend money on projects that do not have a positive return (see Box 9-2). However, private infrastructure investments may not give weight to public benefits of an investment that are not reflected in the project's revenues, such as increased safety or reduced pollution. For projects for which such benefits are substantial, it is important to have a public partner that can contribute funding that reflects the public benefits of the project.

To encourage development of more efficient forms of highway finance, the Department of Transportation has entered into Urban Partnership Agreements with several metropolitan areas that will undertake programs that include congestion pricing or variable toll demonstration projects. Calling for broader reform to highway finance, the Secretary of Transportation proposed a plan in 2008 to reform Federal highway policy by initiating a movement away from the fuel-tax-based approach to funding highway investment to methods that link fees more closely to use of the road system, such as congestion pricing. The Secretary also proposed expanding support for private sector participation in road projects, including removing current Federal statutory and regulatory barriers to tolling on Federally supported highways.

Box 9-2: The Role of Incentives in Road Investments

When private sector road operators rely on user fees for their revenue, the potential for profit gives them incentives to invest in projects that improve service to the public. Examples of such investment can be seen on the Indiana Toll Road, which provides a key route between Chicago and Ohio. In 2006, the State agreed to turn over operations on the road to the Indiana Toll Road Concession Company under a 75-year lease. Within the first year, the company installed electronic tolling facilities, easing congestion and saving commuters valuable time. The company also spent $250 million to add lanes to highly trafficked areas of the road. Because the company's profits depend on the toll revenues it generates, the operators have an incentive to improve road conditions when the cost of doing so is less than the extra revenue it gains from improving service to drivers.

While some State and local governments use cost–benefit analyses to guide their infrastructure investment decisions, many others fail to make the investments that offer the greatest net benefits. Traffic signal optimization is one area in which municipal governments have frequently failed to invest resources despite very high expected returns. Over time, pedestrian and vehicle traffic patterns change substantially as cities grow and residential and commercial areas develop. Retiming traffic signals to optimize traffic flow can reduce vehicle stops, which in turn reduces delays, fuel use, and vehicle emissions. Transportation engineers recommend retiming signals every 3 to 5 years, but a recent survey showed that only 60 percent of State and local traffic agencies retime their signals at least every 5 years.

Signal optimization is relatively inexpensive, and recent projects have seen benefits in time and fuel savings exceed their cost by more than 40 to 1. Cities like Nashville, Austin, and Portland, Oregon, have invested in signal optimization plans and seen improvements in traffic delay and air quality, but State and local agencies often fail to allocate resources to signal optimization programs. Many retime their signals infrequently or conduct traffic assessments only in response to citizen complaints. Local governments will better serve drivers if they follow the private sector's lead and base their investment decisions more heavily on cost–benefit analysis.

Aviation

Like roads, airports and air traffic control services are often provided by the public sector. As with fees to finance roads, it would be economically efficient to set aviation fees where a competitive market would set them, at marginal cost. In fact, aviation fees bear little relationship to marginal costs. Airport landing fees are generally based on aircraft weight, and air traffic control operations are funded largely by a ticket tax of 7.5 percent on each airline ticket. Air traffic control operations are also funded by fuel taxes and additional fees.

This approach to financing means that fees do not reflect marginal costs in at least two important respects. The cost of air traffic control services depends on the number of planes, not on the size of those planes or the number of passengers each carries. Similarly, each flight at a congested airport contributes approximately the same amount to congestion, regardless of the plane's size. Because fees are roughly proportional to the size of each plane and the value of tickets sold, an airline that flies a single plane with 200 passengers might pay roughly the same fees as an airline that flies 10 planes with 20 passengers each. The second airline, however, generates approximately 10 times as much congestion and requires about 10 times as much air traffic controller time.

The result is that airlines do not take into account the external cost they impose when they schedule a flight using a crowded airport. Airlines schedule frequent flights with small aircraft rather than fewer flights with larger aircraft. Overcrowded airports mean delayed flights, and delays have been increasing in recent years, with congestion at the Nation's busiest airports a significant contributing factor. Delays were especially severe in New York City airports in the summer of 2007; for example, at John F. Kennedy International Airport (JFK), only 56 percent of flights arrived on time during the summer months.

One method the government can use to address overcrowding is to place caps on the number of flights permitted to land at an airport, in order to limit those flights to the capacity the airport can accept. When the Federal Aviation Administration (FAA) establishes a cap at an airport, each airline is assigned "slots" permitting its aircraft to land or take off at particular times. Delays are thereby reduced by excluding other airlines from the airport. In the past, slots have been assigned through a negotiated process, and this approach was used in 2008 at JFK and Newark Liberty International airports after severe delays in the summer of 2007.

A problem with this approach is that the government must decide whose planes can and cannot land at the airport. The need to obtain slots from the government acts as a barrier to new entry at the airport, so that passengers are

denied the benefits of competition. Even if the FAA makes wise decisions about which airlines should initially receive slots when a cap is imposed at an airport, this allocation will become inefficient over time. But the FAA will find it difficult to further reallocate the slots regardless of how inefficient a given distribution of slots becomes: given their scarcity, slots are very valuable, so an incumbent authorized to use the slot will go to great lengths to maintain its allocation.

Recognizing the inefficiency that results when the government decides which airlines have access to an airport, the Administration has sought to use market-based mechanisms to allocate scarce airport capacity. One approach is to allow airports to charge landing fees in a way that reflects the greater demand to operate at certain times of the day. The Department of Transportation published guidance in 2008 clarifying that airports have the authority to charge congestion-based prices that would help encourage planes to use the airport when it is less busy, as long as the total charges imposed do not exceed the eligible costs of operating the airport. Under such an approach, airlines—and ultimately passengers—would decide whether it was worth paying a premium to schedule a flight at the most popular time.

Another approach with a similar result is to auction slots so that each slot is used by the airline that values it most highly. As with congestion-based landing fees, an auction would drive up the price of slots at the busiest times, but it would be less expensive to schedule a flight when the airport is less crowded. Auctions would permit new entry by airlines if they believed they could serve consumers more efficiently. In New York City, the Administration issued rules that would implement this approach for a limited number of slots. Apart from efficiently allocating the slots within the cap, an auction would reveal the market value of the other slots held by the airlines. This could help encourage airlines to trade slots among themselves if they discover that particular slots would be worth more in the hands of a different airline.

Conclusion

Government can play an important role in addressing the market failures associated with natural monopoly, externalities, and imperfect information. However, it would be naive to assume that government can eliminate all inefficiency in a market. Government lacks the information and incentives that make competitive markets work efficiently. Before intervening in a market, policymakers should first examine whether the inefficiencies of government involvement are outweighed by the inefficiencies of an unregulated market.

Regulation will be most efficient if it takes advantage of market mechanisms where possible. The Administration has taken an approach to regulation that supports competitive markets and attempts to take advantage of private sector incentives rather than working against them. There are many opportunities to further improve the efficiency of regulations, and this chapter has laid out a number of areas where such improvements are possible.